Personality traits among individuals with substance use disorders attending a psychiatric hospital in Lagos

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Submitted on: March 3th ,2025
Published on: June 30th 2025

ABSTRACT

Substance use disorder is a chronic relapsing disease with rising incidence. Many studies have focused majorly on the sociocultural aspects of substance use disorder and its management. Certain personality traits have been linked to higher risk of substance abuse. Identifying these traits can help predict vulnerability and development of personality-based interventions. The study aimed at identifying personality traits among individuals with substance use disorder. This was a descriptive cross-sectional study involving 167 participants. The Big Five Inventory measured the personality traits of the individuals. Data was analysed using the SPSS version 26 at 95% confidence interval. There were more males (74.3%) than females in the study and most common age group was 25-34 years (49.7%). The mean SD score for extraversion was 24.57 (4.54), agreeableness 34.73 (5.90), conscientiousness 32.55 (6.20), neuroticism 21.64 (5.88) and openness 35.78 (6.73). Multiple pairwise comparisons revealed significant differences among personality traits. The highest mean differences were observed between: Openness vs. Extraversion ($t = 21.6$, $p < 0.001$), Agreeableness vs. Extraversion ($t = 20.6$, $p < 0.001$), and Conscientiousness vs. Neuroticism ($t = 18.8$, $p < 0.001$). There was statistically significant differences in personality traits across the different substance use disorders noted in agreeableness ($F = 4.1$, $p = 0.04$), conscientiousness ($F = 4.0$, $p = 0.04$), and openness ($F = 4.53$, $p = 0.04$) across SUD groups. No significant differences were observed in extraversion ($p = 0.31$) or neuroticism ($p = 0.62$). The study concluded that openness, agreeableness, and conscientiousness were significantly higher compared to extraversion and neuroticism in the participants. The results underscore the need for personality-targeted intervention strategies.

Keywords: *Substance use disorder, personality traits, openness,extraversion, neuroticism, agreeableness, conscientiousness*

INTRODUCTION

Substance abuse is a broad spectrum, multi-etiological disorder which has many negative long-lasting effects on individual well-being, particularly that of young adults. (Khodarahimi & Rezaye, 2012)Substance use disorders result from long-term exposure to substances and subsequent mental and physical dependence.

According to the Diagnostic and Statistical Manual, 5th edition, the essential feature of a substance use disorder is a cluster of cognitive, behavioural, and physiological symptoms indicating that the individual continues using the substance despite significant substance-related problems

There is an underlying change in brain circuits that may persist beyond detoxification, particularly in individuals with severe disorders. The behavioural effects of these brain changes may be exhibited in the repeated relapses and intense drug craving when the individuals are exposed to drug-related stimuli. Overall, the diagnosis of a substance use disorder is based on a pathological pattern of behaviours related to use of the substance.

Psychoactive substances are used worldwide.(Degenhardt et al., 2016; Johnston et al., 2015; UNODC, 2017) In 2016, the United Nations Office on Drugs and Crime (UNODC) estimated that 275 million people aged 15-64 years have used drugs at least once. This prevalence increased significantly from 2010-2016. (Tran et al., 2019) Gureje and colleagues in a large descriptive epidemiology study that was representative of the Nigerian adult population reported a lifetime proportion of drug use as alcohol at 58%, tobacco at 17%, sedatives at 14%, stimulants at 2.4%, and cannabis at 3%.(Gureje et al., 2007) we extend the description to include the features of substance dependence. Method: A stratified multi-stage random sampling of households was used to select respondents in 21 of Nigeria's 36 states (representing 57% of the national population They reported a male predominance amongst the drinkers and smokers. A higher level of education was associated with a lower likelihood of both lifetime use and past year use of psychoactive substances but this was not similar to the trend of economic status. The study reported that most drug users started to use in adolescence and young adulthood but the peak age of use was between 35 – 64 years old. Most persons started with alcohol use before moving to tobacco and then cannabis.(Gureje et al., 2007)we extend the description to include the features of substance dependence. Method: A stratified multi-stage random sampling of households was used to select respondents in 21 of Nigeria's 36 states (representing 57% of the national population Another large study, the National Survey of Substance Use in Nigeria conducted in 2015 reported alcohol as the most prevalent psychoactive substance of use with a lifetime risk of 39% while a lifetime use of 6.6% was reported for cannabis as the most commonly used illicit substance.(Adamson et al., 2015)

Personality, is composed of a collection of psychological characteristics or traits that determines one's personal preferences and individual style of behaviour, and distinguishes individuals from each other. (Donnellan & Robins, 2012; Sadock,Sadock, & Ruiz, 2017*2017.*) Personality can also be defined as "a dynamic organization, inside the person, that creates the person's characteristic patterns of behaviour, thoughts, and feelings. (Sadock, Sadock, & Ruiz, 2017) This defines personality as the factor that makes an individual's behaviour consistent and different from other people in a comparable situation. (Donnellan & Robins, 2012) Locus of control is a dimension of personality trait. It is an individual's belief about his or her self (internal) versus situation or others' (external) control.(Donnellan & Robins, 2012) It defines how a person believes that their actions determine the outcomes they obtain in life. An individual who believes that he or she controls what happens to him or her in life possesses internal locus of control while an individual who believes that other factors determine what happens to him or her in life possesses the external locus of control. Externals have lower work motivation, a weak belief that effort leads to performance, thus at risk of receiving poor salaries and more anxious when compared to internals (Donnellan & Robins, 2012).

The five-factor model is a dimension of personality trait that organizes numerous concepts into a short list defined by five concepts which are extroversion, agreeableness, neuroticism, conscientiousness, and openness to experience.(Britwum et al., 2022) Extroversion describes energy, assertiveness, sociability, and talkativeness. High extroversion is often interpreted as attention seeking and domineering while low extroversion causes a reserved, reflective personality, which can be interpreted as self-absorbed.(Sadock Sadock, & Ruiz,2017., n.d.) Agreeableness refers to a tendency to be trusting and cooperative rather than suspicious and antagonistic towards others. High agreeableness is often seen as naive or submissive while low agreeableness is often seen as competitive, challenging, argumentative, or untrustworthy people. (Sadock Sadock, & Ruiz,2017., n.d.) Neuroticism refers to the degree of emotional stability and impulse control and is sometimes referred to as "emotional stability". A high need for stability manifests as a stable and calm personality but can be seen as not motivating and unconcerned. A low need for stability causes a reactive and excitable personality, but they can be perceived as unstable or insecure. Conscientiousness is the degree to which an individual is consistent or reliable. (Donnellan & Robins, 2012)

Those who score high on this dimension follow through with commitments, are careful, hardworking, and organised while those who score low are uncaring, lazy, and inattentive to detail.(Sadock Sadock, & Ruiz,2017.) Openness explains how people are interested in learning new things

or holding on to what has been previously known, meeting new people or keeping their circle of friends constant, going to new places, or being restricted to old places. (Sadock, Sadock, & Ruiz, 2017.) Those who are perceived to have high openness are seen as intellectual, broad-minded, curious, and imaginative while those perceived to have low openness are narrow-minded and less interested in the outside world (Donnellan & Robins, 2012; Sadock Sadock, & Ruiz, 2017).

Personality traits are important in the aetiology and outcome of psychoactive substance use.(Olaseni & Okhakhume, 2015) Personality traits are important factors in identifying individuals at high risk for psychoactive substance use. (Olaseni & Okhakhume, 2015) It is believed that psychoactive substance users are vulnerable to being dependent because of their weak personality.(Ebrahim et al., 2018) Numerous studies have highlighted how the personality structure is related to psychoactive substance use(Ebrahim et al., 2018; Olaseni & Okhakhume, 2015) and people with higher score on neuroticism have been reported to have a higher chance of abusing psychoactive substances while no such association was found between psychoticism and psychoactive substance use.(Olaseni & Okhakhume, 2015) The reason given for this by Olaseni and co-investigators in 2020 was that individuals with a high score on neuroticism are predisposed to negative unpleasant feelings like anxiety, hostility, and depression which have been linked to psychoactive substance use.(Olaseni & Okhakhume, 2015) Terracciano and colleagues studied the five-factor model personality profile among drug users in a large sample of individuals and found that active smokers scored lower on conscientiousness and higher on neuroticism when compared to non-smokers.(Terracciano et al., 2008) Marijuana users, in particular, scored higher on openness and lower on agreeableness when compared to non-users while active cocaine and heroin users scored higher on neuroticism and lower on conscientiousness. (Terracciano et al., 2008)

Substance use disorders (SUDs) constitute a significant and escalating mental health concern globally, with Nigeria experiencing a noticeable increase in the prevalence of substance misuse, particularly among young adults and urban populations. Lagos, being a densely populated metropolitan hub, has witnessed a disproportionate burden of substance-related problems, contributing to psychiatric admissions, social dysfunction, and increased criminal activity. Despite the availability of treatment services in psychiatric hospitals, challenges such as poor adherence to treatment, high rates of relapse, and poor long-term outcomes persist.

Evidence from international literature suggests that certain personality traits—such as high impulsivity, neuroticism, or low conscientiousness—may predispose individuals to substance use and negatively influence treatment outcomes. However, there is a paucity of research in Nigeria

exploring how personality factors interact with substance use behaviours. Most clinical interventions in psychiatric settings focus primarily on detoxification and symptom management, often neglecting the deeper psychological and personality-based dimensions of substance abuse.

The lack of localized data on the personality profiles of individuals with SUDs limits the capacity of mental health professionals to develop and implement personalized, psychologically informed treatment strategies. This is particularly important in a culturally diverse context like Lagos, where sociocultural factors may also shape personality development and substance use patterns. Therefore, there is an urgent need to investigate the personality traits prevalent among individuals with substance use disorders attending psychiatric hospitals in Lagos. Such knowledge could enhance clinical assessment, support individualized therapy planning, and ultimately improve treatment outcomes by aligning interventions with patients' personality dynamics.

This study aimed to examine the variations in personality traits among individuals with different substance use disorders, with a focus on identifying significant differences in the traits, and their potential impact on substance use behaviors and treatment approaches.

METHODOLOGY

I. Study design

The study design was a descriptive cross-sectional study.

II. Study population

The study was conducted at the Federal Neuropsychiatric Hospital, Yaba, Lagos. The hospital has an 80-bed inpatient substance abuse department. The study population consisted of patients aged 18-64 years seeking treatment at the substance abuse department of the hospital and who have received a diagnosis of a substance use disorder, according to ICD 10 criteria. A sample of participants was drawn from this population using the following eligibility criteria:

Inclusion Criteria

1. Have received a principal diagnosis of substance use disorder
2. Aged 18-64 years
3. Be able to communicate in the English language

Exclusion criteria

4. A clinical ICD 10 diagnosis of other mental disorders.
5. Presence of intellectual /developmental disorder.
6. Presence of any debilitating general medical condition.
7. Presence of cognitive impairment

III. Sampling technique

Using the Leslie Kish formula for

determination of sample size for a cross-sectional study, a total sample size of 167 was calculated following correction for 10% non-response rate. Participants who met the inclusion criteria were recruited into the study using systematic sampling during the study period. According to the hospital records, about 300 patients with the clinical diagnoses of SUDs, who also meet the inclusion criteria utilize the emergency department every month. By implication, about 10 patients with the diagnosis of SUD utilize the facility every day. For the study, the daily sampling frame was the list of assessed patients for the day who met eligibility criteria, arranged based on patient's time of arrival to the emergency room. The daily sample size was determined based on the total sample size (167) divided by number of working days in the three months study period (60), which is approximately 3. The first participant was selected randomly by simple ballot and the other two participants were the nth patient, with n being the daily sampling frame divided by 3. This process continued until the sample size was complete.

Study instruments

The socio-demographic questionnaire assessed socio-demographic characteristics like age, gender, employment of the patient, marital status, religion, ethnicity, and level of education. It also assessed the clinical profile of the participants such as substances of abuse, duration of use, a previous encounter with treatment, and presence of medical comorbidity. The presence of medical comorbidity was confirmed from the patients' case notes.

The Substance use disorder module of the MINI International Neuropsychiatry Interview (M.I.N.I) is an instrument that was used to confirm the diagnosis of substance use disorder among the participants. The (M.I.N.I.) was designed to make a diagnosis according to ICD 10 and DSM IV criteria using the advantage of its brief structure(Boyer & Lecrubier, 1997; Sheehan et al, 1997). The alcohol and drug modules were used to establish the diagnosis of substance use disorders, the (M.I.N.I.) having the advantage of its brevity.(Boyer & Lecrubier, 1997) The alcohol and drug section of the MINI has been used in several previous studies in Nigeria.(V. Lasebikan et al., 2020) During the pre-test, the alcohol and drug module of MINI also showed significant correlation with harmful use and dependence syndrome of the ICD 10 Research Diagnostic Criteria.(Boyer & Lecrubier, 1997)

The Big Five Personality Inventory is a suggested taxonomy developed in the 1980s based on the psychological trait theory.(Rothman & Coetzer, 2003) The instrument is 44-item inventory that measures an individual on the Big Five Factors (dimensions) of personality. Each of the factors is then further divided into personality facets. (John & Srivastava, 1999)and at various levels of abstraction or breadth (Jonn> Hampson, & Goldberg, 1991; McAdams, 1995 The five factors are openness, conscientiousness, extraversion,

agreeableness, and neuroticism. These "Big Five" has been advocated for as a basic framework for personality description and assessment due to its replicability and ubiquity across numerous cultures over the years.(Zhang et al., 2019) The first item is openness to experience. This item focuses on inventive/curious vs. consistent/cautious). The item "conscientiousness" focuses on (efficient/organized vs. extravagant /careless), extraversion focuses on (outgoing/energetic vs. solitary/reserved, agreeableness focuses on (friendly/ compassionate vs. critical/rational), while neuroticism focuses on (sensitive/nervous vs. resilient/confident). (Roccas et al., 2002) Before the commencement of the study, a permission was sought from the Berkeley Personality Lab site to use the inventory, after which, the access was granted for its downloading and use. The scoring and interpretation of the instrument was also provided. The BFPI has been validated in Nigeria, against the Eysenck Personality Questionnaire (EPQ), where it was found to have a significant correlation r = 0.88 and an internal consistency of 0.768.(Lawal & Ogunsakin, 2012; Nweke et al., 2021)

IV. Data collection methods

The study objectives, protocol and consent were explained to every participant except in the presence of severe psychotic or mood symptoms. Those who gave informed consent were then included immediately. Those who met the eligibility criteria but still had psychotic symptoms due to psychoactive substance use were followed up until resolution of symptoms. Remission of psychotic symptoms was defined using DSM V criteria of "absence of delusions, hallucinations, disorganized speech, grossly disorganized or catatonic behaviour, and negative symptoms" within 2 weeks of admission into the acute stay ward. For bipolar I patients with psychosis, an additional criterion was "absence or minimal symptoms of both mania and depression for at least 1 week". For the patients with psychotic depression, an additional criterion was "absence or minimal symptoms of depression for at least 2 weeks".(Hirschfeld et al., 2007)including response, remission, relapse, recurrence, and roughening. METHOD A work group of experts in bipolar disorder reviewed prior efforts to define clinical course indicators for unipolar depression and for schizophrenia. Using these efforts as templates, the work group developed consensus operational definitions. The rationale for each of the definitions was a point of time when a treatment decision needed to be made. RESULTS The group defined response as a 50% reduction in a score from a standard rating scale of symptomatology from an appropriate baseline, regardless of index episode type (manic, depressed, or mixed This criteria for remission have also been used in several studies in Nigeria.(V. O. Lasebikan, 2009; V. O. Lasebikan & Owoaje, 2015)duration of untreated illness (DUI Thereafter, they were administered the instruments. The instruments. This process continued till the required sample size was achieved.

V. Data management

Statistical analysis was done using Statistical Package for Social Sciences (SPSS) Version 26. All questionnaires were serialized and data entered into the SPSS entry sheet. As recommended by the authors of the BFI, the mean scores of each item of the BFI were used in its analysis, using independent t test and one-way ANOVA. All Chi-square were Yates corrected or Fisher's exact test applied where required. All analyses were carried out at a level of significance set at $p < 0.05$.

VI. Ethical considerations

Ethical approval was sought from the Ethics Review Committee of the Federal Neuro-psychiatric Hospital, Yaba and all the principles of ethics concerning research on human subjects as contained in the Helsinki declaration was adhered to. The principle of autonomy was respected throughout the study. No form of cohesion was involved. The participants had to agree voluntarily to participate before they were screened. There were no consequences for those who decided not to get involved or pull out during the research. An informed consent form containing the study protocol, information on confidentiality, privacy, anonymity, and other necessary information was given to every participant to sign. Only those with signed informed consent forms participated in the study. Confidentiality was maintained during and after the study. Also, the filled questionnaire was kept safe in a place only accessible to the researcher to ensure confidentiality even after the study.

RESULTS

In total, 167 questionnaires were administered to the participants. They were all properly filled and usable for analysis. The socio-demographic characteristics of the respondents are illustrated in Table 1. The mean age was 29.49 years old ±8.08 with about half (49.7%) being between 25 and 34 years old while only 1 participant (0.6%) was between 55 and 64 years old. While 88.6% of the participants had completed a minimum of secondary education, the majority of them (60.5%) are unemployed. Most of the participants (79.0%) were single.

Figure I shows a descriptive profile of the participants. According to the pie chart, 6 (3.6%) had alcohol use disorder (AUD) as a single diagnosis, 60 (35.9%) had any drug use disorder (DUD) as a single diagnosis, 53 (31.7%) had both alcohol use disorder and drug use disorder (co-AUD and DUD), while 48 (28.7%) had multiple drug use disorder (Multiple DUD).

Table 2 displays the mean scores of each scale of the Big Five Personality Inventory. The results the mean SD score for extraversion score was 24.57 (4.54), agreeableness 34.73 (5.90), conscientiousness 32.55 (6.20), neuroticism 21.64 (5.88) and openness 35.78 (6.73).

Multiple pairwise comparisons show that the highest mean differences were for openness vs extraversion $t = 21.6$, $p < 0.001$, agreeableness vs extraversion, $t = 20.6$, $p < 0.001$ and conscientiousness vs neuroticism, $t = 18.8$, $p < 0.001$ (See Table 3) indicating strong contrasts between these personality dimensions.

Table 4 shows the pattern of personality trait versus diagnosis of the respondents. The analysis revealed statistically significant differences in agreeableness (F = 4.1, p = 0.04), conscientiousness (F = 4.0, p = 0.04), and openness (F = 4.53, p = 0.04) across SUD groups. No significant differences were observed in extraversion (p = 0.31) or neuroticism (p = 0.62).

Table 5 shows a post-hoc multiple pairwise comparisons of the relationship between various diagnoses and personality traits. For extraversion and neuroticism, there was also no significant pairwise difference between the disorders. For agreeableness, AUD had the highest agreeableness score (mean difference 5.47, p = 0.03) and DUD had the lowest (mean difference 5.03, p = 0.046). For conscientiousness, the mean conscientiousness score is higher for multiple DUD compared with combined AUD and DUD (mean difference 2.61, p = 0.035). For openness, the mean openness score is higher for multiple DUD compared with DUD (mean difference 3.44, p = 0.008) and compared with combined AUD and DUD (mean difference 2.69, p = 0.043).

DISCUSSION

In this study, the mean score for extraversion score was 24.57 (4.54), agreeableness 34.73 (5.90), conscientiousness 32.55 (6.20), neuroticism 21.64 (5.88) and openness 35.78 (6.73).

Multiple pairwise comparisons show that the highest mean differences were for openness vs extraversion, agreeableness vs extraversion, and conscientiousness vs neuroticism, with the lowest mean score for neuroticism. By implication, openness, agreeableness and conscientiousness were more associated with any SUD in the current sample. Results of personality traits in SUDs have been inconsistent. One community survey reported significant associations with high neuroticism, low agreeableness, and low conscientiousness, but not extraversion or openness(Brunborg et al., 2016), while another found significant associations with neuroticism, low openness, low agreeableness, but not extraversion or low conscientiousness(Miller et al., 2013), while another was associations with high scores in all the five dimensions(Slutske et al., 2013). Fodstad and colleagues reported that individuals who use psychoactive substances scored high in neuroticism and low in extraversion, agreeableness, conscientiousness and openness.(Fodstad et al., 2022) Another study conducted in Slovenia observed higher score in Neuroticism and extraversion but lower scores in agreeableness, conscientiousness and openness among opioid users.(Delić, M., Kajdiž, K., Pregelj, 2017) Findings from the current study are partly in support of another study that found that of the Big 5 traits, neuroticism, agreeableness, and conscientiousness were associated with the

general propensity to develop an addictive disorder(Dash et al., 2020). However, contrastingly, the current study reported low neuroticism.

These variations may be explained by difference in study methodologies and impact of cultural differences on personality development. Moreover, the mechanisms underlying misuse of different substances likely vary, so also do personality traits. Another differential factors are the types of substances of abuse and whether the use is mono or poly use(Demkow-Jania et al., 2021). For instance, an Austrian study found significant differences in personality traits across groups based on substance of choice. While a high level of neuroticism and a low level of openness were found among alcohol users and polydrug users, compared to a normative sample, a low level of conscientiousness and a low level of agreeableness was only found when comparing polydrug users to a normative sample(Lackner et al., 2013).

This study also found that the pattern of personality trait differed by diagnosis in the areas of agreeableness, conscientiousness and openness. Specifically, post-hoc multiple pairwise comparisons showed that that the mean agreeable score is higher for AUD compared with DUD, and compared with combined AUD and DUD. Agreeableness as a construct reflects on the ability of an individual to adjust his behaviour in conformity with others, with high agreeableness indicating a typically polite individual, who likes people(John & Srivastava, 1999)and at various levels of abstraction or breadth (Jonn> Hampson, & Goldberg, 1991; McAdams, 1995. By implication, a single diagnosis of AUD is more likely to be more sociable compared with when a DUD is present.

However, the mean conscientiousness score is higher for multiple DUD compared with combined AUD and DUD. The mean openness score was also higher for multiple DUD compared with DUD, and also compared with combined AUD and DUD. There is a dearth of literature comparing different SUDs, and most studies compare personality traits in SUDs against a normative population of non-substance users, as recommended by the authors of the Big Five Personality Inventory(John & Srivastava, 1999) and at various levels of abstraction or breadth (Jonn> Hampson, & Goldberg, 1991; McAdams, 1995.

Nevertheless, given that conscientiousness is the personality trait of being honest and hardworking and openness the personality trait of seeking new experiences and intellectual pursuits, the findings from the current study seem paradoxical. This is because low conscientiousness and low openness have been found to more associated with SUDs. Another paradoxical finding in the current study is the low neuroticism score across different SUDs in the current study. This is critical given that high neuroticism and high extraversion personality trait which comprises of being depressed, anxious or having emotional reaction to stress is recognized to be the

predominant personality trait among individuals with SUDs(Gao et al., 2022).

The lack of a normative data against which the Big Five Personality Traits can be compared is a limitation to the study. Another limitation of the study is the small sample size of those who have only AUD. This has significantly reduced the statistical power of the sample. The presence of multiple diagnoses posed another difficulty in the assessments, especially those with co-AUD and DUD. Despite these limitations, the findings from this study should serve as a baseline for comparison in future studies on personality traits and readiness to change among individuals with substance use disorders especially in this environment.

CONCLUSION

This study highlights the significant role of openness, extraversion, conscientiousness, and neuroticism in shaping substance use behaviors. The findings suggest that interventions should focus on reducing risk-taking tendencies in high-openness individuals, promoting social engagement among those low in extraversion, and leveraging self-discipline in conscientious individuals to improve treatment outcomes. Future research should explore these personality dynamics in larger and more diverse samples to further refine intervention strategies.

ACKNOWLEDGEMENT AND FUNDING

The authors would like to express their gratitude to all participants who contributed to this study. We extend our appreciation to the research assistants and clinical staff who facilitated data collection. Special thanks to institution for their support throughout the study. This research received no external funding.

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APPENDICES

Table 1: Socio-demographic characteristics

Variables	Frequency	Percent (%)
Age Group		
18-24	49	29.3
25-34	83	49.7
35-44	27	16.2
45-54	7	4.2
55-64	1	0.6
Sex		
Male	124	74.3
Female	43	25.7
Ethnicity		
Igbo	65	38.9
Yoruba	84	50.3
Hausa	5	3.0
Idoma	6	3.6
Others	7	4.2
Religion		
Islam	40	24.0
Christianity	123	73.6
No religion	4	2.4
Marital Status		
Single	132	79.0
Married	28	16.8
Divorced	1	0.6
Separated	6	3.6
Family settings		
Monogamous	115	68.9
Polygamous	52	31.1
Educational status		
Completed primary	11	6.6
Completed secondary	64	38.3
Completed tertiary	92	55.1
Employment status		
Unemployed	101	60.5
Employed	66	39.5

Table 2: Mean Scores of the Scales of the Big Five Personality Inventory among Respondents

Domain	N	Mean	SD
Extraversion	167	24.57	4.54
Agreeableness	167	34.73	5.90
Conscientiousness	167	32.55	6.20
Neuroticism	167	21.64	5.88
Openness	167	35.78	6.73

Table 3: Pairwise Comparisons of the Mean Scores of the Personality Traits

Personality Trait	t	df	P
Openness Vs Extraversion	21.6	166	**< 0.001**
Openness Vs Conscientiousness	6.4	166	**< 0.001**
Openness Vs Agreeableness	2.0	166	**0.041**
Openness Vs Neuroticism	19.4	166	**< 0.001**
Agreeableness Vs Neuroticism	17.5	166	**< 0.001**
Agreeableness Vs Extraversion	20.0	166	**< 0.001**
Agreeableness Vs Conscientiousness	5.0	166	**< 0.001**
Conscientiousness Vs Extraversion	17.2	166	**< 0.001**
Conscientiousness Vs Neuroticism	18.8	166	**< 0.001**
Extraversion Vs Neuroticism	4.7	166	**< 0.001**

t is t test value, df is degree of freedom, significant p values written in bold

Table 4: Pattern of Personality Trait versus Diagnosis of the Respondents

Personality Trait	SUDs	N	Mean	SD	F	df	p
Extraversion	AUD	6	27.50	5.320	1.2	3^{B}	0.31
	DUD	60	24.10	4.678		166^{W}	
	AUD & DUD	53	24.91	4.900			
	Multiple DUD	48	24.50	3.753			
Agreeableness	AUD	6	39.33	4.502	4.1	3^{B}	**0.04**
	DUD	60	33.87	6.339		166^{W}	
	AUD & DUD	53	34.30	5.348			
	Multiple DUD	48	35.77	5.758			
Conscientiousness	AUD	6	35.83	4.622	4.0	3^{B}	**0.04**
	DUD	60	32.55	6.091		166^{W}	
	AUD & DUD	52	31.10	6.369			
	Multiple DUD	48	33.71	6.074			

Neuroticism	AUD	6	18.83	6.338	0.5	3^{B}	0.62
	DUD	60	21.58	6.151		166^{W}	
	AUD & DUD	53	22.11	5.770			
	Multiple DUD	48	21.60	5.614			
Openness	AUD	6	35.83	5.845	4.53	3^{B}	0.04
	DUD	60	34.52	6.513		166^{W}	
	AUD & DUD	53	35.26	7.088			
	Multiple DUD	48	37.96	6.270			

t is t test value, df is degree of freedom, significant p values written in bold

"B" stands for between-groups variability or the variability among the group means.

"W" stands for within-groups variability or the variability within each group.

Table 5: Post-hoc Multiple Pairwise Comparisons of SUD Versus Personality Trait

Dependent variable	**I (SUD)**	**J (SUD)**	**Mean difference (I-J)**	**P**
Extraversion	Alcohol	Drugs	3.401	.083
		Alcohol and Drugs	2.592	.189
		Multiple Drugs	3.003	.135
	Drugs	Alcohol	-3.401	.083
		Alcohol and Drugs	-.815	.341
		Multiple Drugs	-.409	.646
	Alcohol and Drugs	Alcohol	-2.592	.189
		Drugs	.815	.341
		Multiple Drugs	.412	.650
	Multiple drugs	Alcohol	-3.003	.135
		Drugs	.409	.646
		Alcohol and drugs	-.412	.650

Agreeableness	Alcohol	Drugs	**5.471***	**.030**
		Alcohol and Drugs	**5.029***	**.046**
		Multiple Drugs	3.551	.159
	Drugs	Alcohol	**-5.471***	**.030**
		Alcohol and Drugs	-.443	.692
		Multiple Drugs	-1.891	.093
	Alcohol and Drugs	Alcohol	**-5.029***	**.046**
		Drugs	.443	.692
		Multiple Drugs	-1.436	.207
	Multiple Drugs	Alcohol	-3.551	.159
		Drugs	1.891	.093
		Alcohol and drugs	1.436	.207
Conscientiousness	Alcohol	Drugs	3.279	.213
		Alcohol and Drugs	4.725	.075
		Multiple Drugs	2.120	.425
	Drugs	Alcohol	-3.279	.213
		Alcohol and Drugs	1.450	.213
		Multiple Drugs	-1.163	.331
	Alcohol and Drugs	Alcohol	-4.725	.075
		Drugs	-1.450	.213
		Multiple Drugs	**-2.611***	**.035**
	Multiple Drugs	Alcohol	-2.120	.425
		Drugs	1.163	.331
		Alcohol and drugs	**2.611***	**.035**

Neuroticism	Alcohol	Drugs	-2.750	.277
		Alcohol and Drugs	-3.280	.198
		Multiple Drugs	-2.771	.279
	Drugs	Alcohol	2.750	.277
		Alcohol and Drugs	-.530	.634
		Multiple Drugs	-.021	.985
	Alcohol and Drugs	Alcohol	3.280	.198
		Drugs	.530	.634
		Multiple Drugs	.509	.665
	Multiple drugs	Alcohol	2.771	.279
		Drugs	.021	.985
		Alcohol and drugs	-.509	.665
Openness	Alcohol	Drugs	1.317	.643
		Alcohol and Drugs	.569	.842
		Multiple Drugs	-2.125	.459
	Drugs	Alcohol	-1.317	.643
		Alcohol and Drugs	-.747	.550
		Multiple Drugs	**-3.442***	**.008**
	Alcohol and Drugs	Alcohol	-.569	.842
		Drugs	.747	.550
		Multiple Drugs	**-2.694***	**.043**
	Multiple Drugs	Alcohol	2.125	.459
		Drugs	**3.442***	**.008**
		Alcohol and drugs	**2.694***	**.043**